Proceedings of the Nutrition Society (2017), **76 (OCE4)**, E223 doi:10.1017/S0029665117003858

Summer Meeting, 10–12 July 2017, Improving Nutrition in Metropolitan Areas

Full fat cheese intake and cardiovascular health: a randomised control trial

T.J. Butler[1,2], I. Davies[3] and S. Mushtaq[2]
[1]*Department of Clinical Sciences and Nutrition, University of Chester, Chester, CH1 4BJ,*
[2]*Department of Health Professions, Manchester Metropolitan University, Manchester, M15 6BG and*
[3]*School of Sport Studies, Leisure and Nutrition, LJMU, Liverpool, L2 2ER*

Milk and milk products contribute approximately 22 % of the nation's saturated fat (SFA) intake. Recently, the role of dairy and its SFA composition and link to cardiovascular disease (CVD) has been analysed[(1)], suggesting a beneficial action of this food group on reducing cardiovascular risk in high-risk groups[(2,3)]. The aim of this study was to examine the effects of 4 weeks full-fat cheese on circulating lipoprotein fractions, blood pressure and arterial stiffness in healthy adults.

Participants were recruited in the city of Chester, UK. Those meeting entry criteria of: 18–65 years of age, not taking antihypercholesterolaemic or antihypertensive medication took part in the study. Participants were randomised to receive either 50 g of a full-fat Red Leicester (FFC) or placebo (virtually zero fat Cheddar cheese, ZFC) per day for 4 weeks. Anthropometry, blood pressure, brachial and aortic augmentation index (BAIX and AAIX, respectively), pulse-wave velocity (PWV) and a full lipid profile were determined at baseline and post-intervention. Participants were asked to keep a 3-day food diary prior to and for the last 3 days of the protocol. All procedures were approved by the Faculty of Medicine, Dentistry and Life Sciences Research Ethics Committee at the University of Chester.

Table 1. Baseline (T^0) and follow-up (T^1) measurements

	Zero fat cheese (ZFC)				Full fat cheese (FFC)					
	T^0	SD	T^1	SD	T^0	SD	T^1	SD	Time	Time × Group
Weight (Kg)	73·7	16·7	74·5	16·5	70·6	15·1	70·3	14·2	$P = 0·878$	$P = 0·850$
LDL (mmol/L)	2·2	0·8	2·3	0·6	2·4	0·8	2·4	0·9	$P = 0·307$	$P = 0·728$
HDL (mmol/L)	1·5	0·4	1·4	0·4	1·4	0·3	1·4	0·3	$P = 0·841$	$P = 0·345$
AIX (%)	13·7	11·2	10·8	16·7	14·5	12·8	12·0	9·4	$P = 0·242$	$P = 0·525$
BAIX (%)	−25·5	50·1	−3·3	58·0	−18·6	48·8	−6·6	54·1	$P = 0·052$	$P = 0·751$
PWV (m/s)	5·8	0·9	6·1	1·3	5·9	1·1	5·9	0·9	$P = 0·149$	$P = 0·691$

T^0, baseline; T^1 follow-up, LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein-cholesterol; BAIX, brachial augmentation index; AAIX, aortic augmentation index; PWV, pulse-wave velocity. Data show mean ± SD.

Eighty-six (86) individuals completed the study (43 per group). No significant changes were observed in any measured parameter (Table 1). Both ZFC and FFC groups showed a significant increase in calcium intake during the course of the study (1002·1 ± 639·1 mg to 1815·0 ± 1340·1 mg and 1219·6 ± 1169·1 mg 1845·8 ± 1463·2 mg, $P < 0·001$, respectively) showing good adherence to the protocol.

In conclusion, these results suggest that inclusion of 50 g full fat cheese into the diet of a healthy population does not impact negatively on traditional CVD risk markers. Future strategies to reduce SFA intake should focus on – and acknowledge the importance of the source – of SFA in the diet.

1. Lovegrove JA, Hobbs DA (2016) *Proc Nutr Soc* **75**, 247–258.
2. Díaz-López A, Bulló M, Martínez-González MA *et al.* (2016) *Eur J Nutr* **55**, 349–360.
3. Nilsen R, Høstmark AT, Haug A *et al.* (2015) *Food Nutr Res* **59**, 27651.